2.0   INTERNET RELAY CHAT

Internet Relay Chat (IRC) is a chatter-style program that allows multiple users to participate in conferences. It is implemented as a network of IRC servers. Users interact with IRC via IRC clients. There are two clients available to users: a low bandwidth text-based client, named *irc*, and a Graphical User Interface (GUI) client, named *Zircon*. The user invokes an IRC client and directs the client to connect to a local server. Once connected, the user participates in conferences or conversations by joining a channel (conference). Once the user joins a channel, the user then receives all messages sent to that channel. When the user inputs a message to the channel, the message is forwarded to all other clients on the same channel (including clients attached to other servers in the IRC network) at that time.

NOTE: The program uses the term channel extensively. For our purposes, a channel is the same as a conference.

The multiple servers operate as a virtual server. This means that once a user is connected to a server, usually a local server, he has access to all the channels for which he has permission, throughout the system, regardless of where they were initiated. A user can open a channel on his IRC server and converse with a user on that channel even though the other user may be connected to another IRC server in another command center.

IRC is non-persistent in that messages are not automatically saved. It is also very interactive. When a user types a message on the screen, it is very quickly transmitted to all other users currently connected to that conference. However, when a message is sent while a user is not connected, that user cannot see that message. IRC supports the following features:

- Private channels)users not on the channel cannot see who is on the channel.
- Secret channels)users not on the channel cannot detect that the channel exists.
- Keyed channels)users must know a password to join the channel.
- Invitation-only channels)a channel operator must send a user an invitation before the user can join the channel.
- Moderated channels)channel operators can provide or remove permission to individuals to input messages to the conference.

2.1   Overview of Zircon

Zircon is an X-based package that provides a GUI interface to IRC. A text-based client program for IRC called **irc** is also supplied, but no button for it is displayed on the desktop. Zircon supports the following features:

- Side-bar conversations)two-way conversations invisible to others.
- Pop-up channel displays)iconified channel windows will restore themselves when a message arrives on the channel.

- Queries)to the identity of other users.

When the user double-clicks on the **zircon** button, the program Zircon automatically connects to the local IRC server and the windows that comprise the Zircon user interface appear on the screen. At that point the user can get a listing of the channels (conferences) which currently exist in the GCCS IRC network, send a message or hold a conversation with another user who is running an IRC client, or join a channel. By joining a channel, the user is participating in a conference. This Section describes Zircon functionality and provides how-to documentation for the specific tasks to execute within Zircon.

2.2 Zircon Functionality

2.2.1 Types of Users. The GCCS Teleconferencing users are similar to WIN Teleconferencing users. There are three types of GCCS Teleconferencing users: chairman, alternate chairman, and participant. The responsibility and role of each user remains unchanged from the WIN Teleconferencing.

2.2.1.1 Chairman. The chairman initiates a conference. There should be only one active chairman for each conference, and the chairman manages the conference. The GCCS Teleconferencing conference chairman should be the designated channel operator. Only the channel operator can control a channel. The conference chairperson should create the channel several hours before the conference is scheduled to begin.

NOTE: If a conference is scheduled to begin at 0900 hours, and one of the conferees joins the conference at 0855 (before it is created), that user will be the channel operator (i.e., that user will have controlling privileges over the channel).

The chairman plans the conference, disseminates administrative requirements to conference participants, determines conference participants, controls the flow of information, determines the conference ending (or when a conference needs to reconvene) designates the alternate chairman, and determines the conference archival requirements.

NOTE: Number of GCCS Teleconferencing Users. There is no documented limit to the number of GCCS Teleconference users. However, it is recommended that GCCS Teleconference participants be limited to 10 active participants (participants involved in conversation). However, there may be any number of passive participants (listeners) on a given channel.

2.2.1.2 Alternate Chairman. The alternate chairman may reconvene the conference in the absence of the chairman.

2.2.1.3 Participant. A participant is a GCCS Teleconferencing user that has been given the administrative requirements to join the GCCS Teleconferencing by the Chairman or Alternate

Chairman.

2.2.2   GCCS Basic Teleconferencing Functions. The **IRC/ZIRCON** icon is used to start the news client function.

2.2.2.1   How to Start Zircon.

Step 1.   At a GCCS workstation, locate the system Launch Window menu on the desktop screen.

Step 2.   Locate and double-click the *IRC/Zircon* icon.

The Zircon control panel is displayed and then the Zircon Information Window (Figure 2-1) is displayed on top of the Zircon Control Panel (Figure 2-2).


```
Zircon Information Window - forgot.saic.com

*** Welcome to the Internet Relay Network ellis
 Your host is forgot.saic.com, running version 2.8.21
 This server was created Tue Mar 21 1995 at 01:21:51 EST
forgot.saic.com: umodes available oiws, channel modes available biklmnopstv
forgot.saic.com: There are 1 users and 0 invisible on 1 servers
forgot.saic.com: I have 1 clients and 0 servers
 - forgot.saic.com Message of the Day -
 - 23/6/1995 10:56
 - Modify /h/COTS/IRCS/lib/ircd/ircd.motd to customize this message.
```
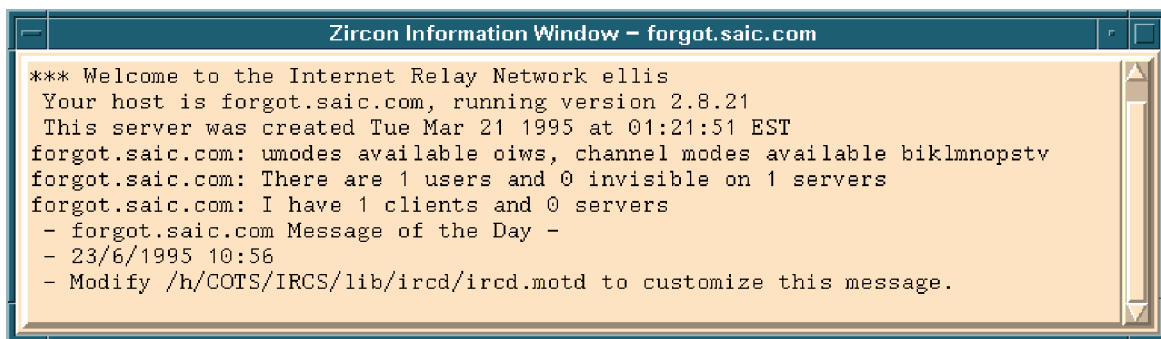
Figure 2-1. Zircon Information Window

The Zircon Information Window is where routine messages that are not part of a specific channel are sent (e.g., Message of the Day and various errors). The user can divert other messages to this window by setting various configuration options if you do not want to see them as pop-up windows.

Separate the Zircon Information Window screen from the Zircon Control Panel screen by clicking on the title bar of the Zircon Information Window and, while holding down the left mouse button, drag the window onto an open area on the screen. This newly uncovered window is the Zircon Control Panel (Figure 2-2), which provides a set of buttons and menus that are used to control the teleconferencing session.
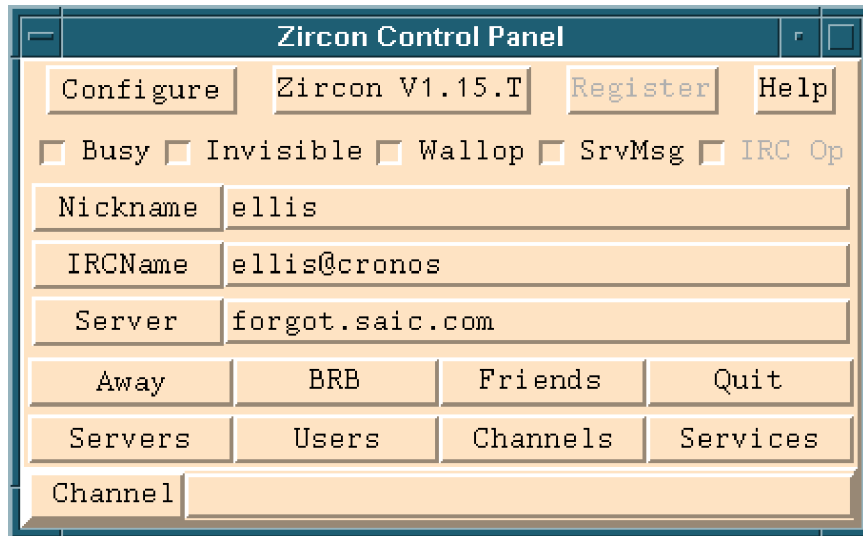
Figure 2-2. Zircon Control Panel

Configure	Allows the user to configure a nickname, IRC name, and server lists.
Zircon Version x.x.x	Displays the Zircon version number including "tcl" and "tk."
Register	Disabled for the SIPRNET use. There is no requirement to register on the SIPRNET.
Help	Displays a dialog asking for topics. No HELP service is available on the SIPRNET.
Busy	Indicates you are busy (or not busy).
Invisible, Wallop, SrvMsg	Indicates you are invisible to receive Wallops and Server messages.
IRC Op	Enable only when you are an IRC Operator. (Not the same as channel operator). Operators have special privileges for connecting and reconfiguring IRC networks. This capability should be unavailable to users.
Nickname	The menu from this button has your nicknames on it. Select one and it will be sent to IRC. By default the first item in the list is chosen by Zircon as your initial nickname.
IRC Name	Your IRC NAME should always be your full name. Changes will only take place on a server change.
Server	A list of servers to which you normally connect. The first one in the list is chosen by Zircon as the server to connect to when Zircon is initially run. It will be your local server.

Away	This menu contains your away messages. When you are away this button is lit.
BRB	Clicking this button sends the message BRB (be right back) to all the channels you are currently on, notifying them that you will be absent for a short while.
Friends	Clicking this brings up the Friends window, which has buttons for all the users you chose to have in your User Info variable. You configure this list in the People panel.
Quit	Quit IRC. You will be prompted to confirm the quit and to enter a new sign off message. The default action is to<u>not</u> save the file.
Servers	A menu that allows the user to perform various IRC server operations, such as connect your server to another server (if you have operator privileges) or identify which servers are connected to the network.
Users	Allows the user to perform various IRC user operations.
Channels	A menu that allows the user to perform various IRC channel operations. Also on this menu are the names of channels you asked to be put here. Selecting one of those will join that channel.
Services	This menu provides access to various IRC service providers. Currently nickserv and noteserv are there by default, and you can add your own by setting the services variable in your rc file.
Channel	This entry is where you can type in the name of a channel you wish to join. Type here, hit return and a window will pop up, assuming you are allowed access to the channel. All channel names begin with # to denote global channels or with & indicating local (to your server) channels.

2.3 How to Accomplish Common Tasks Within Zircon

2.3.1 Finding and Entering an Existing Channel. There are two ways to enter an existing channel: enter the channel name in the Channels block, or select the channel name from the list of available channels. The first method allows you to join a channel when you are sure of its name. The second method allows you to search through a menu of channel names and select the appropriate channel. To enter the channel name:

Step 1.	Go to the Zircon Control Panel and select the *Blank Field* button to the right of the Channel button (see Figure 2-2).
Step 2.	Enter Conference name (i.e., *#chan_x*) then press <return>.

If you are not allowed to join the channel, you will be so informed. If the channel does not

currently exist, it will be created. When you join a channel, a new window is displayed on the screen with the channel name as its title. To select the channel from a list:

Step 1.	Click the *Channels* button and select *List* from the menu, which displays a new window (Figure 2-3).
Step 2.	Click on the *List* button at the bottom of the window to list the available channels.
	NOTE: At the top of this window is a threshold control and filters to limit the newsgroups that are listed. To list all visible newsgroups, set the threshold to one and leave the filters blank. To list all channels whose names contain the string "forscom", specify ".*forscom.*" in the channels filter.
Step 3.	Double-click the desired channel.
Step 4.	To update the channels listing, click the *List* button again.

Figure 2-3. IRC Channel List

2.3.2   How to Create a Channel (Start a Conference). A new channel is created by joining a channel that does not already exist.

Step 1.	Go to the Zircon Control Panel and select the *Blank Field* button to the right of the Channel button (Figure 2-2).

> Step 2.   Enter Conference name (i.e., *#chan_x*) then press <return>. Local channel
>   names beginning with "&" and global channel names beginning with "#."

NOTE: The conference or channel name entered becomes the channel's title.

See Subsection 2.3.2.1 for information on naming a channel. When the new channel is created
you are its operator and sole member. Users who subsequently join the channel cannot be channel
operators unless you or another channel operator make them one by selecting the user's button
and choosing **ChanOp**.

NOTE: There is no difference between the original channel operator and a newly created
                 channel operator; and channel operators can remove operator status from each
                 other. Users who subsequently join the channel will not be channel operators
                 unless you or another channel operator make them so.

Channel operators are the only users who have control privileges for the channel. It is strongly
recommended that a user who schedules a conference create the channel several hours before the
conference is to begin. If the channel is not created early, and another user logs on, that user
becomes the channel operator. For example, if you schedule a conference to begin at 0900 hours,
and one of the conferees joins the conference at 0855 (before you have created it)that user will
be the channel operator (i.e., they will have controlling privileges over the channel). Creating the
channel in advance allows time to negotiate a solution if a channel already exists with the same
name that you planned on using for your conference channel.

If you do not wish any IRC users to join or be aware of the conference before 0900, change the
mode of the channel to "Secret" and "Invite Only" when it is created (see Subsection 2.3.4). At
0900 hours, change the channel such that the users you wish to be in the conference can join.

2.3.2.1   Local Versus Global Channels. IRC operates as a network of servers. A local
channel is one that can be accessed only by users attached to the server on which the channel is
created. A global channel is one that can be accessed only by users on any server in the network.
A channel name that begins with a "&" is a local channel; a channel that begins with "#" is a
global channel. Creating a local channel allows the operator to use the access restrictions of the
server itself, which is often configured to only allow "local" connections (clients within the same
site).

Once an acceptable channel is named the IRC Channel window is displayed (Figure 2-4). This
window is the center for teleconferencing. Conversations between two or more GCCS users are
held within this channel window. See Subsection 2.3.4 for a description of each button on the
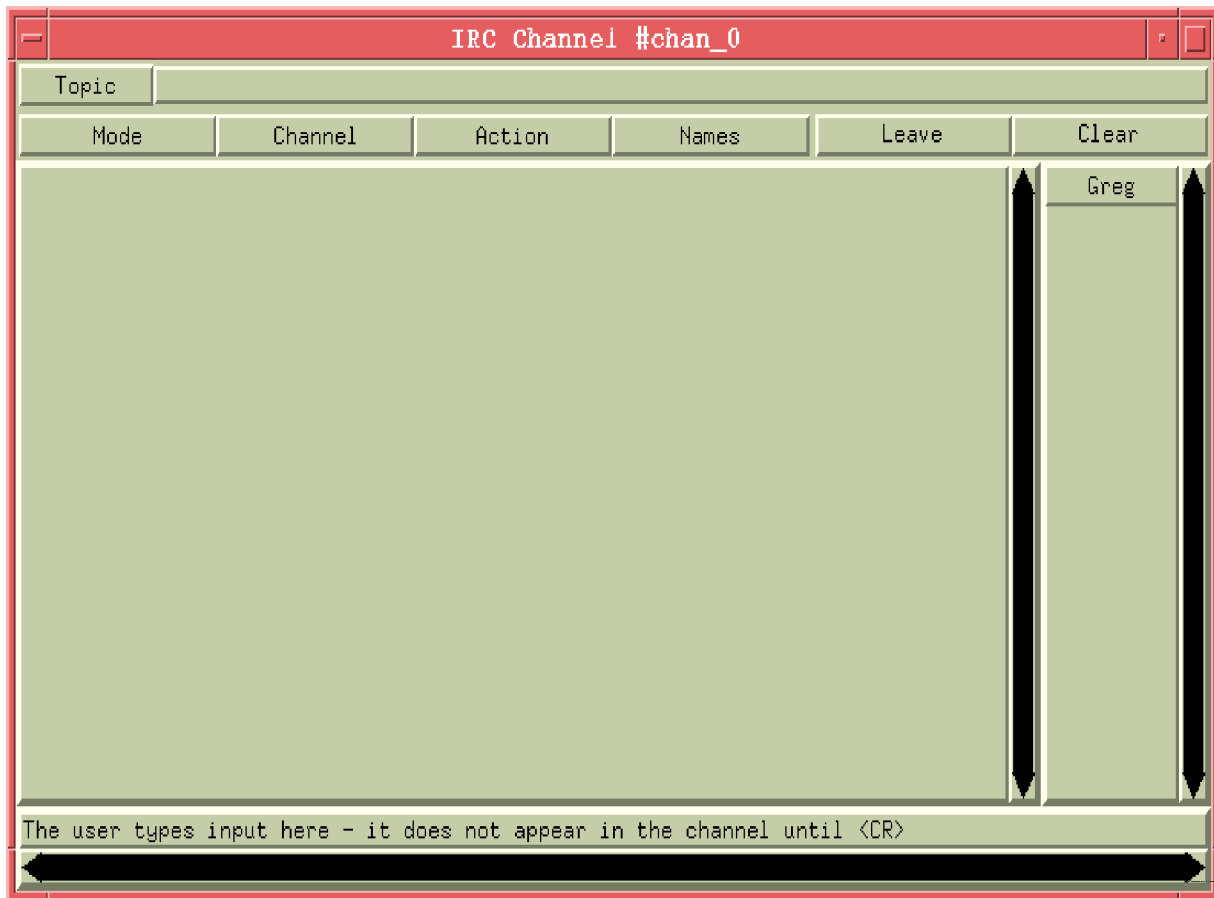channel window display.

```
┌─────────────────────────────────────────────────────────────────────┐
│ □        IRC Channel #chan_0                                    ▫ □   │
├─────────────────────────────────────────────────────────────────────┤
│ ┌───────┐ ┌─────────────────────────────────────────────────────┐   │
│ │ Topic │ │                                                     │   │
│ └───────┘ └─────────────────────────────────────────────────────┘   │
│  ┌────────┐┌──────────┐┌──────────┐┌──────────┐┌────────┐┌────────┐ │
│  │  Mode  ││ Channel  ││  Action  ││  Names   ││ Leave  ││ Clear  │ │
│  └────────┘└──────────┘└──────────┘└──────────┘└────────┘└────────┘ │
│ ┌────────────────────────────────────────────┐ ▲ ┌──────┐ ▲         │
│ │                                            │ █ │ Greg │ █         │
│ │                                            │ █ │      │ █         │
│ │                                            │ █ │      │ █         │
│ │                                            │ █ │      │ █         │
│ │                                            │ █ │      │ █         │
│ │                                            │ █ │      │ █         │
│ │                                            │ █ │      │ █         │
│ │                                            │ █ │      │ █         │
│ │                                            │ █ │      │ █         │
│ │                                            │ █ │      │ █         │
│ │                                            │ ▼ └──────┘ ▼         │
│ ├────────────────────────────────────────────┴───────────────────┤ │
│ │The user types input here - it does not appear in the channel until <CR>│
│ └──────────────────────────────────────────────────────────────────┘│
│ ◄████████████████████████████████████████████████████████████████► │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 2-4. IRC Channel Window

2.3.3   Interacting with a Channel. All interaction with a channel can be done through the channel window. Messages from other users on the channel are automatically displayed in the window—each line of text is labeled on the left margin with the nickname of the user who sent it. Entering text into a channel:

┌───┐
│ Step 1.   Enter text in the field at the bottom of the IRC Channel window. As you enter │
│   text, the characters you type appear at the bottom of the window. You may edit │
│   this text with the left and right arrow keys, the backspace key and the delete │
│   key.   │
│ Step 2.   To broadcast your message to the channel, press <enter>. (You will see your │
│   input labeled with a ">" on your screen; other users will see the text labeled with │
│   your nickname.) Your message is displayed in the IRC Channel window of   │
│   users participating in the conference.   │
└───┘

2.3.3.1   Displaying the Users in a Conference. The Names menu at the top of a conference window contains items that allow the user to perform actions related to specific users.

To display users in a conference:

Step 1.	Select the **Names** button on the IRC Channel window.
Step 2.	Select **Buttons** to display a column of Names. The nicknames of the conference participants are displayed as buttons on the right side of the window. (Note the location of the name "Greg" in Figure 2-4.)

To remove the list of names displayed on the right side window:

Step 1.	Select the **Names** button on the IRC Channel window.
Step 2.	Select the **No Buttons** option.

2.3.3.2   How to Find the User Behind the Nickname. Under IRC in general, and Zircon in particular, a user's actions are identified by a nickname. However, nicknames are restricted to nine characters or less (and thus are not always fully descriptive), and users are capable of setting or changing their nickname at any point. To determine the user name of a conferee:

Step 1.	Select the **Users** button from the names displayed on the screen; or select a user's menu entry from the Names menu.
Step 2.	A menu is displayed that lists actions that may be performed upon that user. Select **Whois**.
Step 3.	The Whois dialog box is displayed. Enter the nickname in the appropriate entry space. The user's login (<username@machine.domain>), the user's name (as entered by the user —an unsecure item), and a list of the other IRC conferences the user is currently a member of is displayed.

There is also a menu item labeled "Finger," which will attempt to query the finger daemon on the user's machine; this will fail in a secure environment (the finger daemon should not be executed on a secure machine).

2.3.3.3   Holding a Sidebar Conversation. IRC supports one-on-one conversations, as well as channels. A sidebar conversation under Zircon can be with another person in the conference or with a user on the GCCS IRC network who is no, participating in the conference. Starting a sidebar conversation displays a new window on the screen. This window is functionally identical to a channel window, but its default size is smaller than a channel window and it is titled with the user's nickname. Typing a message into this window and pressing <CR> displays a sidebar window on that user's terminal (titled with your nickname). You and this user can then hold a private conversation using these windows. To hold a sidebar conversation with a user

currently in your conference:

Step 1.	Identify the nickname of the person with whom you wish to have a sidebar conversation (displayed on right side of IRC Channel window).
Step 2.	Select the **Names** button.
Step 3.	Select the **Users** button from the Names menu.
Step 4.	Select **Msg** button from the User menu.
Step 5.	A dialog box is displayed. Enter the nickname in the appropriate space.

To hold a sidebar conversation with a user not currently in your conference:

Step 1.	Select the **Users** button on the Zircon Information Window (Figure 2-1).
Step 2.	Select **Msg** button from Users menu.
Step 3.	A dialog box is displayed. Enter the nickname in the appropriate space.

NOTE:	If there is no user with the specified nickname on the GCCS IRC network, this will be indicated after you attempt to send a message to the user.

2.3.3.4   **Leaving a Conference.** Leaving a conference is the same as leaving a channel.

Step 1.	Select the **Leave** button at the top of the IRC Channel window. This will take you back to the Zircon Control Panel window.
Step 2.	Select the **Quit** button on the Zircon Control Panel window.

Leaving the Zircon Control Panel terminates IRC and takes you back to the desktop launch window.

NOTE:	A channel operator (or chairman) should remain on the channel until all others leave the channel to ensure that the conference will close. The channel operator (or chairman) should be the individual responsible for ending a conference.

2.3.4   Controlling Access to a Channel. By default, when a new channel is created, any user can join the channel. Often, this is not acceptable and the user creating a conference will need to restrict access to the conference. The IRC Channel window (Figure 2-5) can be used to limit access to a conference.
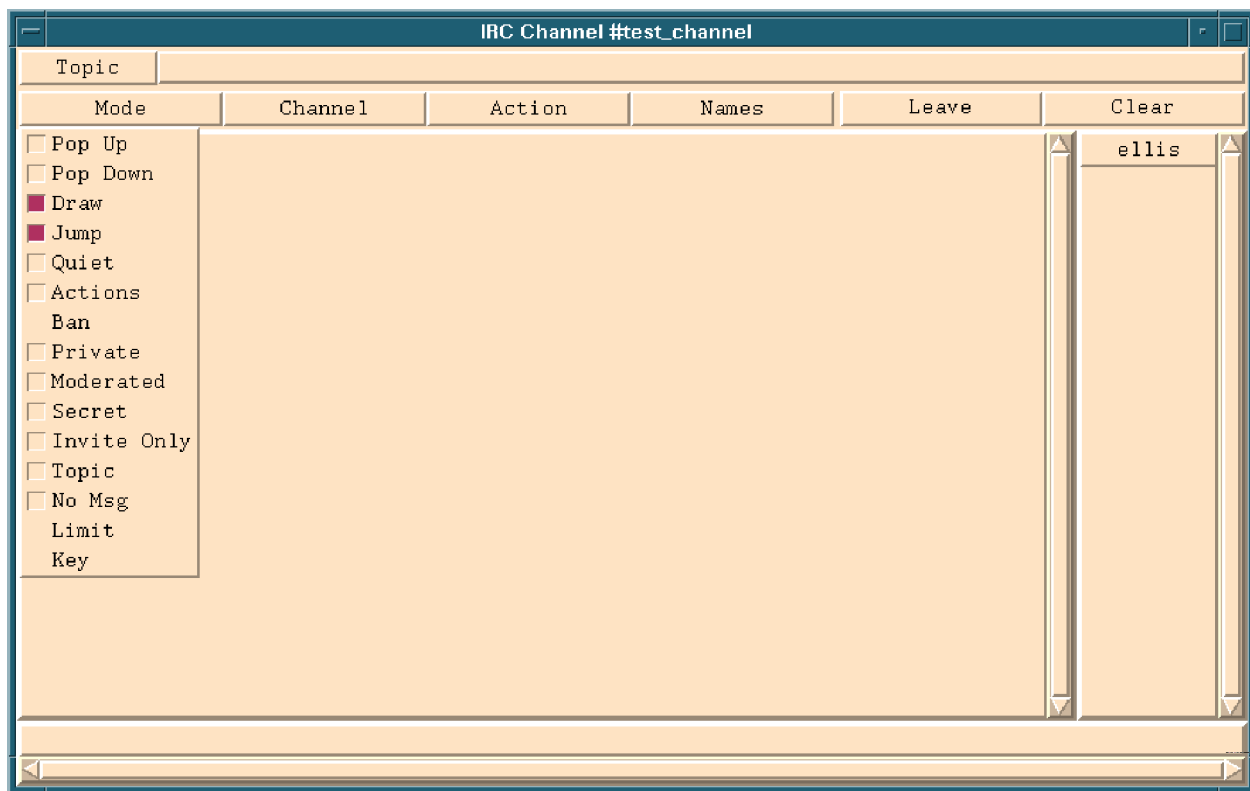
Figure 2-5. IRC Channel Window with the Mode Button Pulled Down

Table 2-1 describes the ways that access to a channel can be restricted. These mechanisms can be combined to create more stringent restrictions. Table 2-2 describes the functions available on the Mode menu.

Table 2-1. Restricting Channel Access

Channel Access	Location and Action
Local Channel	Create a channel whose name begins with "&" instead of "#," to limit the conference to users attached to the same server that the channel was created on. This utilizes the access restrictions of the server itself, which is often configured to only allow "local" connections (clients within the same site).
Secret Mode	The Secret command is under the Mode button on the channel window. Select Secret to put the channel into secret mode. Users listing the available channels will not see this channel, even if they have permission to join the channel.

Channel Access	Location and Action
Invite Only	The "Invite Only" command is under the Mode button on the channel window. Select Invite Only to allow users to join the channel only if an operator of the channel invites them.

To invite a user, press the **Channel** button on the channel window and select **Invite**. A dialog box prompts for a user (nickname) and a channel (the current channel is the default). Enter the nickname, click **OK** and the user is presented with a dialog box asking if they wish to join the channel. Invitations are for immediate use only—if a user with the given nickname is not on the network or if the user declines to join the channel, then the invitation goes away. Further, if the user joins the channel and then leaves the channel, he or she will require a new invitation to re-join. This is an unwieldy, but effective mechanism if you want to have a large number of users on the conference. |
Keyed Channel	The Key command is under the Mode button on the channel window. Selecting this displays a dialog box that allows the user to enter a key (which is equivalent to a password) to the channel. Once this is established, other users attempting to join the channel must enter the same key. The Key command can only be executed by a channel operator. Note that, when the key is set or changed, all users already on the channel will be notified of the new key value.
Encrypted Channel	The Crypt command is under the Channel button on the channel window. Selecting this displays a dialog box that allows the user to enter an ecryption key (a string of characters). Once established, all text entered by the user into this channel is encrypted with this key; and all text arriving on this channel is descrypted with this key. Any user can enter this command, and only that user's I/O to that channel is effected. This is only useful if multiple users enter the same encryption key. The encryption mechanism is not DOD-certified.
Limits	The Limit command is under the Mode button on the channel window. Selecting this displays a dialog box that allows you to limit the total number of users on the channel. This can only be done by a channel operator.

Table 2-2. Channel Functions

Button	Action
Pop Up	Activating this button allows the user to minimize the window because it will cause the IRC Channel window to pop up when anything has been entered into the channel by another user.

Button	Action
Pop Down	Not Implemented.
Draw	Turns on whiteboard)not recommended for use.
Jump	If activated, causes cursor to return to point of new text.
Quiet	Turns bell off.
Actions	Modifies *<username>* to *username on other users' channel windows. Modifies > to *username on user's own channel window.
Ban	This button bans a selected user from the channel. It is not expected to be used in GCCS.
Topic	A topic is a small amount of text that describes the conference. When this button is activated, only the operator may change the topic.
No Msg	Not implemented.

2.3.5   How to Leave a Channel. Leaving a channel is the same as leaving a conference.

Step 1.   Select the **Leave** button on the IRC Channel window.

Step 2.   Answer yes to the exit dialog box.

2.3.6   How to Log a GCCS Teleconferencing Session (save to log file). Once the log file is open, all conversations will be recorded. After the conference, the log can be edited (using vi or any other available editor) and printed out from an X-Terminal window.

From the IRC Channel window:

Step 1.   Select the **Channel** button.

Step 2.   Select **Log** from the Channel menu.

Step 3.   Select **Open** from the Log menu.

Step 4.   Specify the name of the log file.

Step 5.   Select **ok**

2.3.7   How to Close a Channel. A channel ceases to exist when there are no longer any users on the channel. Thus, to close a channel, everybody leaves it (selects the *Leave* button from the top of the channel window). A channel operator should remain on the channel until all other users leave the channel to ensure that the conference will, indeed, close. If a user remains on the channel (perhaps they walked away from their terminal without leaving the channel), the operator can select the user's button, choose *Kick*, and then kick the user off the channel with a polite message informing them that the conference is over. If there is no operator on a channel, the

channel can still be closed by having an IRC operator "kill" the user(s) on the channel (from the user's button on the channel window select *Kill*). Note that an IRC operator's "Kill" completely disconnects the user from whatever IRC server they are attached to. This should only be done under extreme circumstances.

The channel operator (conference chairman) is responsible for ending a conference. To close a channel:

Step 1.	Select the **Mode** button the IRC Channel window:.
Step 2.	Toggle the **Invite Only** selection to on (square is darkened). This ensures that no new participants will join the conference.
Step 3.	Using the text entry area at the bottom of the window inform all users that the conference is over.
Step 4.	Once all users are off the channel, select the **Leave** button on the IRC Channel window.

If a user(s) remains on the channel, the operator may remove a user(s) by highlighting the remaining user(s) name on the IRC Channel window, selecting the **Kick** entry on the menu. Only the channel operator can do this.